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for SECONDARY SCHOOLS

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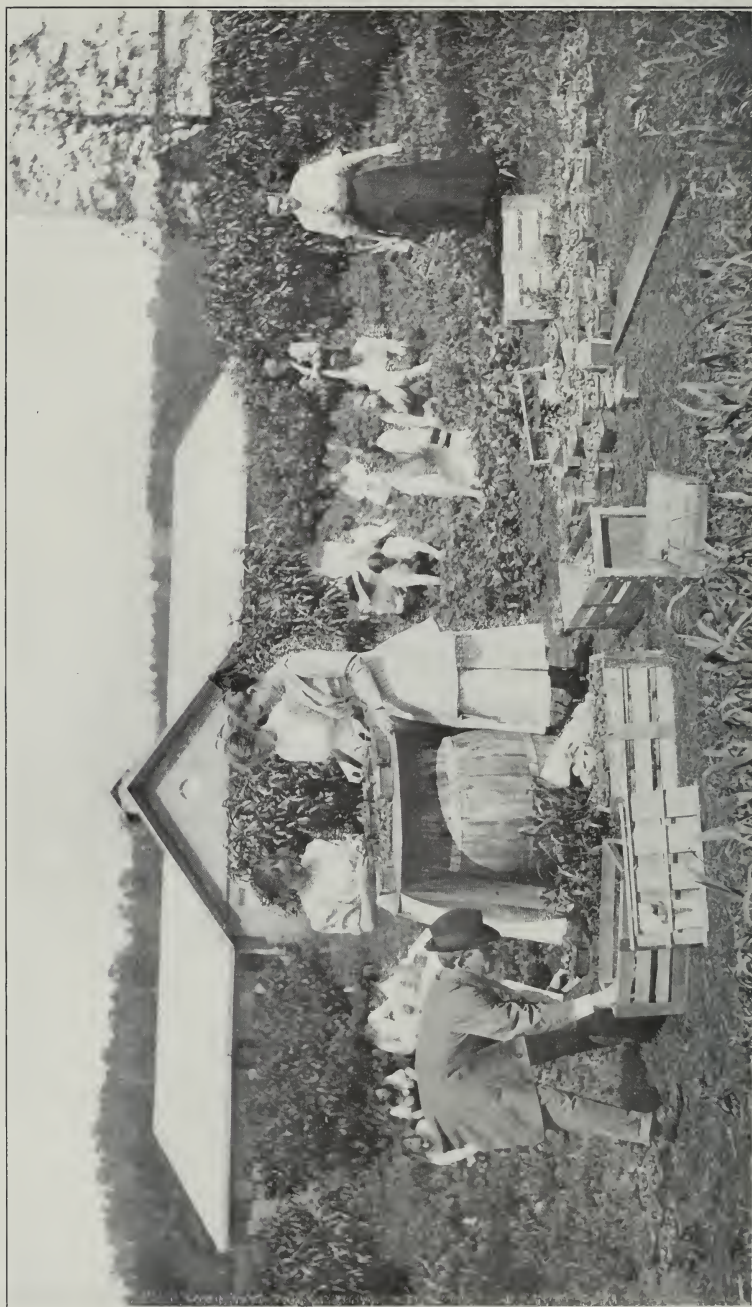
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THE STUDENT LEARNS TO DO THINGS BY DOING THEM
A class picking, sorting and packing strawberries.

Suggestions on Teaching Agriculture in Secondary Schools

By

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MONTEVALLO, ALABAMA
OCTOBER, 1913



TO FOLLOW AN AGRICULTURAL TEXT BOOK WITH THE USUAL QUESTION - AND - ANSWER METHOD, WOULD BE A VERY UNINTERESTING, VERY USELESS AND VERY CRUEL PROCEDURE, AND IN THE END NOT ONLY PRODUCTIVE OF NOTHING, BUT ABSOLUTELY HARMFUL—IT GIVES THE STUDENT NO CHANCE.

Suggestions on Teaching Agriculture in Secondary Schools

I. AS TO THE TEACHER.

The teaching of agriculture in the Secondary Schools is beset by the same obstacles and handicaps which confront it in the Elementary Schools, though possibly not to such a degree. Probably the greatest obstacle in the way of teaching the subject is the teacher,—or rather the teacher's point of view. The teacher too often fails to realize the possibilities of the subject; is not imbued with the proper enthusiasm and so is inclined to discredit the importance of it.

The teacher must realize in the beginning that if any value is to come from the teaching of agriculture that the proper point of view toward the subject must be secured. The crying need for intelligence on the subject must be felt, the increasing demand on the part of our people for knowledge on the subject must be recognized. Our inborn Southern antipathy for anything that smacks of the soil must be obliterated. In short we must approach the subject as one worthy of the best study of the botanist, the chemist, the zoologist, the geologist, and worthy the very best efforts of one who would be all of these—an agriculturist.

The teacher who does not feel keenly the import of the subject should endeavor to correct this as far as possible. Probably the best means at hand would be to take up a consistent reading course, and a study of methods in teaching the subject. A great deal of help along this line can be secured from the United States Department of Agriculture at Washington. For several years the department has employed an "Expert in Agricultural Education." Several helpful bulletins have been published which will be sent upon request. A few books of a general and inspiring nature should be in every teacher's library. Among them might be suggested: "The State and the Farmer," L. H. Bailey, \$1.25; "The Farmer of Tomorrow," F. I. Anderson, \$1.50; "Rural Wealth and Welfare," by George T. Fairchild, \$1.25; "The Earth's Bounty," by Kate V. St. Maur, \$1.75.

The above books are published by the MacMillan Publishing Co., New York City.

II. AS TO THE STUDENT.

High School students are supposed to have studied Elementary Agriculture. Consequently the teacher as a rule assumes that the students know the elementary principles of the subject. This is a very common and usually a very fatal mistake. The public school may

possibly awaken an appreciation in the mind of the student for the subject. It is impossible for them to do much more. It is best that the students be considered as beginners. This may necessitate some repetition.



HOME-MADE FLOWER BOX.

The students should be encouraged in making plant boxes and other equipment at home. It vitalizes the work.

Unfortunately many pupils and teachers as well, rebel at going over the same matter twice. The explanation for this is that no intelligent conception of the matter was secured at first, and to go over it again would simply be taking useless steps. But if intelligence lights up any theme, then it becomes more interesting and larger on going over it again and again. It is only by repetition after repetition that the pupil grasps a satisfactory concept of any truth or principle. It is only the unknowing teacher and the dull student that chafes at repetition.

The high school student has reached the stage in his education where his studies mean very much or very little. He will be greatly interested or very much bored, as a usual thing. The studies which interest him most are those presented in the most vital way, those bearing upon his daily life and interests, those effervescing with spirit and action. Agriculture especially can be a very live subject with the high school student or else a very dead one.

III. AS TO EQUIPMENT.

The equipment for teaching Agriculture in high schools ranges from nothing in most schools to a few hundred dollars' worth of material in others. Some of the best results from agriculture have come from little schools which had practically no equipment. In these cases the fields and neighboring farms supplied the needed material for study. The entire community can serve as equipment for those who will use it. In addition the students would be given exercises or practical problems which were worked out at the home of the student. Thus the principles learned in the class room would be worked out and demonstrated by the student. This after all is the most effective way of teaching agricul-



HOME-MADE FLOWER BENCH.



SUGGESTIONS FOR AN AGRICULTURAL READING TABLE.

The reading table could occupy one corner of the school room if there is no other place for it. The students should be referred to it often.

ture in most schools, and the more this method is followed the less need there will be for equipment at the school. Of course it is best to have some equipment for the class, and in order to get a clear understanding of a great many topics it is absolutely necessary. Fortunately most of the necessary equipment can be supplied by the class itself. Such material as germinating boxes, seed testers, flower boxes, bulletin racks, specimen cases, work tables, window boxes could be made by the students at home (or in the manual training department, if there be one in the school). Such tasks as these given the students will go far, not only toward securing the equipment, but also toward a much more valuable result, i. e., securing the interest of the pupil.



A WINDOW BOX, besides adding to the attractiveness of a school room, will furnish material to illustrate some of the lessons in Agriculture.

purpose. The letter writing could be put into the hands of a student committee appointed for the purpose.

The following is suggested as a very good list of farm papers to begin with: *Progressive Farmer*, Birmingham, Ala.; *Southern Agriculturist*, Nashville, Tenn.; *Southern Planter*, Richmond, Va.; *Southern Ruralist*, Atlanta, Ga.; *Orange Judd Farmer*, Atlanta, Ga.; *Practical Poultry*, Birmingham, Ala.; *Industrious Hen*, Knoxville, Tenn.; *Southern Fruit Grower*, Chattanooga, Tenn.; *Hoard's Dairyman*, Fort Atkinson, Wis.

All of these papers except *Hoard's Dairyman* are published in the South, and would naturally be more timely and practical for Southern readers. If the reading table could afford it, or, better still, if the interest of some patron or friend of the school could be enlisted to that end, the addition of a few papers from other sections, as, *The Country Gentleman*, New York; *Country Life*, Curtis Publishing Co., New York, and *Breeders' Gazette*, Chicago, Ill., would be valuable additions to the reading table.

It is an easy step from the realization of a reading table to the beginning of an agricultural library. Let the book cases and bulletin racks come from the efforts of the students. Write the United States Department of Agriculture, Washington, D. C., requesting a copy of every available bulletin they have for distribution, also for available Year Books and other publications. A letter to the same effect to the congressman from your district would help in this. Also write a similar letter to the State Experiment Station, Auburn. This will give a very good beginning for an agricultural library. If it is preserved and used it will grow.

In addition to such equipment as can be provided by the efforts of the teacher and class, very little else will remain to be bought. The following should be secured if possible:

A compound microscope, 1-4 and 1-6 objective	\$35.00
A soil thermometer	2.00
Two sets of beakers	3.00
One pair laboratory balances	6.00
Two dozen test tubes, large size	.60
Two graduated flasks	.50
Litmus paper—blue and pink	.25

Concerning equipment we might say further—do not be discouraged by a lack of it; get what you can—have an ice cream supper as a last resort; give the students a hand in getting it; and use well what you have; it will beget more.

IV. AS TO THE PLACE OF AGRICULTURE IN THE HIGH SCHOOL.

In the village and rural high schools of our State, agriculture should be made the central theme of the school's curriculum. This is so because eighty out of every one hundred of our people live by the farm and stand directly in need of agricultural training; because three-fourths of our wealth and welfare comes from the farm; because the standard of our citizenship is measured by the standards of our farmers; because our progress and development must of necessity keep pace with the progress and development of our farms. In these schools at least two years should be devoted to the subject with a recitation at least three times a week with a minimum of forty-five minutes to each class. In addition to this as a minimum for recitation work a great deal more must be done by way of correlation with other studies in order to give this subject the place it should occupy. Also time must be provided for outside work with the class. It is sometimes rather difficult to arrange this when the teacher of agriculture has a room of students in other classes to supervise. The difficulty may be met either by leaving an older student in charge of the room or, better still, by having the class in agriculture scheduled for the last period of the day and allowing the other students to go home. In order to carry out any correlation in schools where other teachers have charge of some of the sub-

jects studied by the pupils in agriculture, it will be necessary, of course, to secure the co-operation of these teachers. Bringing the other studies of the pupils into relation with agricultural interests will have a very decided tendency to emphasize agriculture.

In the city schools agriculture does not demand so much emphasis and here it would usually be along the lines of Nature Study, Practical Botany, School Gardening, etc. The city schools, however, could use to a greater extent than they do some of the various branches of the subject to quite an advantage.

Whatever emphasis is given the subject will depend largely upon the teacher. Usually you will get all the time you ask for, provided you show you can use it to advantage.

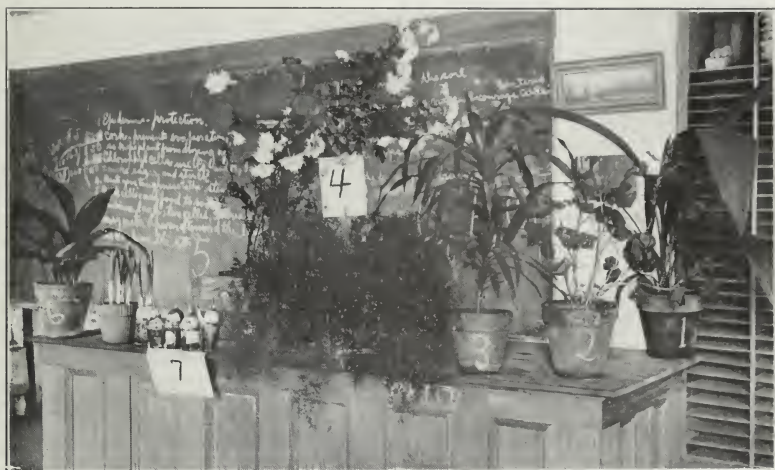
V. AS TO CLASS ROOM METHODS.

There are no rule of thumb methods of presenting agriculture, just as there is no universal agricultural text-book—nor will there ever be. The nature of the subject prevents this. To be effective the subject must be adapted. An effective presentment of agriculture in Wisconsin would probably not get results in Alabama. What would answer in my school might not in yours. Of course, the fundamental principles are universal, but the application of these principles are always local, and even the acquirement of these principles is a distinct problem for each individual school.

If the work consists simply in putting a text book in the hands of the class and requiring a certain number of questions answered, little, or nothing will be accomplished. To follow an agricultural text-book with the usual question-and-answer method prevailing in most academic studies would be a very uninteresting, very useless and a very cruel procedure, and in the end not only productive of nothing, but absolutely harmful—it gives the student no chance. The text-book must be adapted to the particular school in which it is used and to the needs of its students and community. The text book in other words should be used only as it lends itself to the course, which must be shaped to meet the needs of the school and its community. This would mean that probably parts of the text-book would be omitted altogether. Other parts would be supplemented to quite an extent by collateral reading, by observation, by demonstration, by experiments and by practicums at home or on the school grounds.

Unless the text is enlivened and vivified at every opportunity, in fact at every lesson, the class interest will drag. The method must not be abstract. Present everything concretely. Illustrate everything. If you are studying soils have samples of soils, and experiments on soils. If you are studying a particular plant, have specimens of the plant, or better still, study the plant where it is growing. Do not undertake any lesson without having material to illustrate that lesson. The student learns about good seed only by examining and comparing seed and germinating them. Do not study about any operation without performing the operation. The child learns to plant seed only by planting seed. The way to learn to make cuttings is to make cuttings.

Very frequently the lesson calls for outdoor work or study. This is especially the case when the school has little equipment. Often teachers hesitate to take a class outdoors for fear class discipline will be demoralized. This is a mistake. The restraint of the class-room will, of course, not be felt out doors, and the attention of the class may be distracted to some extent. But this matters little compared to what may be gained by bringing the pupils into direct contact with the object or subject to be studied. There are some lessons which can only be gotten well out of doors. Probably one of the best helps in teaching agriculture in many schools is through the school garden work. School gardening can be adapted to so many phases of plant study and covers such a wide scope of effort that a discussion of it would not be under-



PLANTS SUGGESTED FOR SCHOOL ROOM DECORATION AND STUDY.

These are easily grown and stand unfavorable conditions of the school room well.

- | | |
|---------------|--------------------------------------|
| 1. Date Palm. | 4. Asparagus (Sprenger). |
| 2. Geranium. | 5. Yard Chrysanthemum. |
| 3. Dracena. | 7. Bulbs (Narcissus, Jonquils, etc.) |

taken in a short paper like this. The teacher is referred to Marie Louise Greenes' book, "Among School Gardens," \$1.25, Charities Publishing Co., 105 East 22nd Street, New York City.

In teaching agriculture, just as in teaching any other subject, the results are measured largely by thoroughness in teaching. Below are some suggested outlines which should cover adequately an average high school treatment of a few common subjects:

Outline of study for high school class on

Lesson I: SOIL FORMATION.

Topic

- A. The earth as a part of the universe.
- B. Early geological conditions.

- C. The earth as a hot, solid, rocky sphere.
- D. Early influences in soil formation (1) physical, (2) chemical.
- E. Explain physical and chemical changes.

Lesson II:

Topic

A. Physical influences.

Sub-topic 1. Influence of temperature—Contraction, expansion, freezing, thawing.

Sub-topic 2. Influence of water—Erosion, grinding.

Sub-topic 3. Influence of crushing forces—Slides or displacements, glaciers, ice-bergs, winds.

Lesson III:

Topic

A. Chemical influences.

Sub-topic 1. Reactive power of chemical elements with resulting disintegration of rocks.

Sub-topic 2. Solvent power of water.

Sub-topic 3. Solvent power of gases.

Sub-topic 4. Solvent power of acids.

This lesson illustrated with simple experiments.

Lesson IV:

Topic

A. Organic influences.

Sub-topic 1. Appearance of life on the earth.

Sub-topic 2. One-celled plants, lichens, mosses.

Sub-topic 3. One-celled animals.

Sub-topic 4. Result of decay.

Sub-topic 5. Effect of organic matter.

Note—Assign a paper on physical influence in soil formation to one-third of class; on chemical influences to one-third, and on organic influences to one-third.

Lesson V—Demonstration Lesson:

Take the class to a convenient stream—if a stream is not close by, a dry ditch or a roadway with banks will answer.

Explain before starting that the class is to endeavor to see as many things as they can that have any bearing upon Lessons I to IV. Require notebooks to be taken.

Show the Class: (1) The different types of soil to be found

{	sand
{	clay
{	loam

Ask the Class: (1) To indicate in their note books what particular influences predominated in forming the different types.

Show the Class (2) The different layers of soil

{	soil, subsoil
{	transported soil
{	sedentary soil

Ask the Class (2) To indicate in their note books what particular influences predominated in forming the different layers.

Show the Class: (3) The { displacement of sand, gravel, rocks
effect of water in { erosion of banks
{ wearing of pebbles

Ask the Class: (3) To point out illustrations of the influence of water on soil formation.

Show the Class: (4) The effect of moss or lichens on a rock (by scraping them away).

Ask the Class (4) To indicate in their note books on the way back the result of any other influence which they can see bearing upon soil formation.

Suggestion on correlating the lessons on "Soil Formation" with the other work of the school:

English—Have the English Class write papers on some of the various topics of the study.

Physics—Have the Physics Class study contraction, expansion and physical changes.

Chemistry—Have the Chemistry Class study { water
reactions, chemical changes and the solvent { gases
power of { acids (carbonic acid)

Physical Geography—Have this class study the early stage of the earth.

Biology—Have this class study the first plant and animal forms.

II. Outline of Study for High School Class on

MOISTURE AND SOIL RELATIONS.

Lesson I:

(The “richness” of a soil is measured largely by its ability to maintain a supply of moisture for the crop.)

Topic.

Moisture and soil relations as affected by physical properties of the soil.

Study of physical properties of $\begin{cases} \text{sand} \\ \text{clay} \\ \text{loam} \end{cases}$
(or of neighborhood types of soil)

Make experiment to show the difference in the ability of sand, clay and loam to *absorb* water.

Make experiment to show the water holding *capacity* of sand, clay and loam.

Make experiments to show the power sand, clay and loam have of *retaining* moisture.

Have the students make an outline covering the results of these experiments.

Lesson II:

Topic

1. Kinds of water in the soil.

- A. Explain and illustrate { a Free water
b Hygroscopic moisture
c Capillary moisture
- B. Study effects of free water { Prevents access of oxygen to the roots
Dilutes the cell sap too much
Destroys bacterial action in the soil
- C. Effect of hygroscopic moisture—Neutral.
- D. Effect of capillary moisture { Dissolves the food for the plant
Carries food into the plant
Increases bacterial action

Lesson III: Improving the Soil and Water Relations.

- A. Means of controlling free water { Drainage (Lesson IV)
Terracing
Hillside ditching } (Lesson V.)
- B. Means of increasing capillary moisture { Addition of humus (Lesson VI)
Deep plowing, subsoiling (Lesson VII)
Pulverizing soil—controlling free water
- C. Means of retaining capillary moisture { Increasing capillary moisture
Frequent and shallow cultivation

Correlation may be made as suggested under lesson on "Soil Formation." It will be noted that five other lessons are suggested in this series. In this connection it might be stated that where very little time is given to agriculture as is the case in many high schools, much better results can be secured by confining the class to very few subjects and working these out well rather than to scatter the efforts of the class over a wide range of subjects. For instance in a high school which devotes only two thirty-minute periods per week to agriculture, the best results can be obtained by concentrating the time on three or four subjects of particular interest to the pupils and community. When this plan is pursued the various phases of the subject should be taken up in sequence with the seasons as near as possible. This will provide at all times material for the class to work with and also allow for demonstration or object lessons in the field.

The following outline of corn studies is offered as an illustration according to seasonal sequence:

CORN.

I. Fall Studies.

1. Types.

- a. One-eared.
b. Two-eared.
c. Prolific.

2. a. Yield of different varieties.
(Experiment Station Bulletin).
- b. Yield of different varieties in the neighborhood.
3. Selecting Seed.
 - a. Size of stalk.
 - b. Number and size of ears.
 - c. Location of ears.
4. Use of score card. Have students make blank score cards according to the following and judge several ears.

SCORE CARD—CORN.

	<i>Scale of points</i>
1. Type and uniformity	10
2. Maturity and market condition	10
3. Purity (a) Kernel	5
(b) Cob	5
4. Shape of ear	10
5. Length of ear	10
6. Circumference of Ear	5
7. Shape of Kernel	5
8. Uniformity of Kernel	5
9. Character of germ	10
10. Butts	5
11. Tips	5
12. Spaces between rows	5
13. Size of cob	10
Total	100

5. Harvesting.
 - a. Methods.
 - b. Machinery.
 - c. Cost of.
6. Storing.
 - a. Kinds of cribs.
 - b. Bins.
 - c. Shelling machinery.
7. Protecting
 - a. Against mice and rats.
 - b. Against weevils.

II. Winter Studies:

1. Marketing.
 - a. Preparation for.
 - b. Co-operation in.
 - c. Market quotations.
 - d. Freight costs.

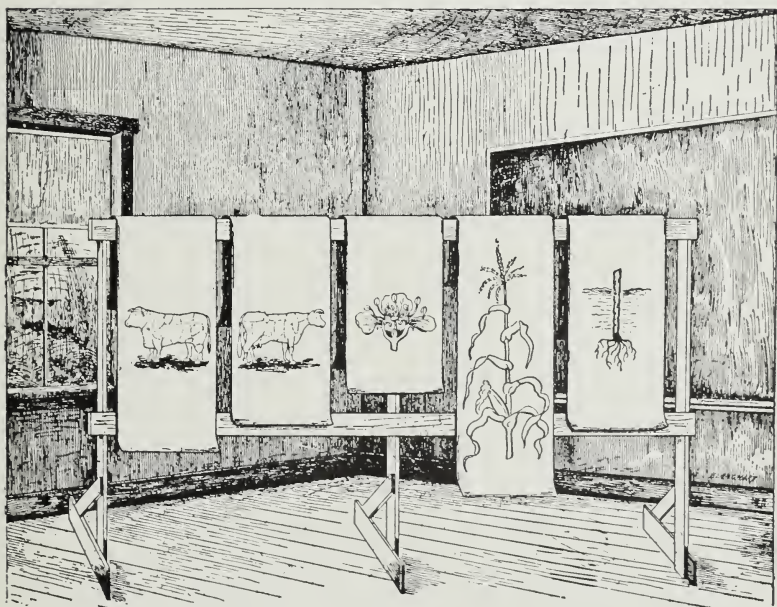
2. Commercial Fertilizers for Corn.
 - a. Phosphoric acid—study of.
 - b. Nitrogen—study of.
 - c. Potash—study of.
 - d. Problems and exercises in home mixing.
3. Plans for Rotation.
 - a. On a cotton farm.
 - b. On a stock farm.
 - c. Green manures.
4. Uses of Corn.
 - a. As food for people.
 - b. As feed for stock.
 - c. As stover or fodder.
 - d. As ensilage.
 - e. The silo.
5. The Boys' Corn Club.
 - a. Purpose.
 - b. Scope.
 - c. Results.
 - d. Organization of local club.
6. Enemies of
 - a. Fungous diseases.
 - b. Cut worm, bud worm, corn worm.
7. Improvement.
 - a. Heredity—influence of.
 - b. Variation—principles of.
 - e. Environment—effect of.
 - d. Selection—results of.

III. Spring Studies:

1. Preparation of soil. Tools.
 - a. Disc harrow.
 - b. Turning plow.
 - c. Disc plow.
 - d. Sulky or gang plow.
 - e. Tooth harrow.
2. Time of Preparation.
Advantages and disadvantages of

{	Fall
{	Winter
{	Spring
3. Kinds of Preparation.
 - a. Breaking broadcast.
 - b. Bedding.
 - c. Shallow.
 - d. Deep.
 - e. Subsoiling.

4. Fertilizing—methods of
 - a. Under the row.
 - b. Side applications.
5. Root System.
 - a. Extent of roots.
 - b. Depth of roots.
 - c. Kind of roots.
6. Cultivation.
 - a. To retain moisture.
 - b. To destroy weeds.
 - c. Deep or shallow.
 - d. Kind of tools used.
7. The Plant.
 - a. Cellular structure—the sap, diffusion.
 - b. Hair roots—Osmosis.
 - c. Stem.
 - d. The leaves, chlorophyl, stomata, starch.
 - e. The flower—Pollination, cross-pollination, detassling.



A frame for homemade manila charts, and other illustrative material.
This has been used with very good results.



HOME-MADE BULLETIN RACK.

Some such rack should be provided to keep in an orderly and convenient way the bulletins, farm papers and books. The students should make this, and they will then be more inclined to make the proper use of it.

The high school course in agriculture should aim at constructive and thorough work. One means of securing the latter is through definite reading courses both for teacher and pupils. The reading course need not be confined to schools in which agriculture is given special emphasis, nor need they be the same for all pupils, nor required necessarily of all the class, but might be of a voluntary nature. The library mentioned, containing the Farmers' Bulletins, could form the basis of these courses. The information gained in the reading course could be brought out in the recitation or in written exercises submitted by the pupils. If a reading course is undertaken voluntarily by the student, the teacher should see that it is followed up consistently.

Probably these bulletins, together with such others as might be secured at Auburn, furnish the best material obtainable by the high school for a reading course. Usually the information obtained from

farm papers is more or less incomplete and cannot be successfully used as a basis of systematic study. Nor are there enough agricultural books in the average high school library to furnish such study.

Below are some suggested reading courses based upon Farmers' Bulletins, issued by the United States Department of Agriculture, Washington, D. C., and Bulletins issued by the Alabama Station at Auburn.

FORAGE CROPS.

Alfalfa	Farmers' Bulletin No. 339
Cowpeas	Farmers' Bulletin No. 318
Millet	Farmers' Bulletin No. 101
Red Clover	Farmers' Bulletin No. 455
Soy Beans	Farmers' Bulletin No. 372
Vetches	Farmers' Bulletin No. 515
Peanuts	Farmers' Bulletin No. 431
Adulteration of Forage Plant Seed.....	Farmers' Bulletin No. 382
Southern Bur Clover.....	Auburn Bulletin No. 165

SOIL IMPROVEMENT.

Renovation of Worn-out Soils.....	Farmers' Bulletin No. 245
Soil Fertility	Farmers' Bulletin No. 257
Leguminous Plants for Green Manuring.....	Farmers' Bulletin No. 278
Barnyard Manure	Farmers' Bulletin No. 192
Soil Conservation.....	Farmers' Bulletin No. 406
Drainage of Farm Lands.....	Farmers' Bulletin No. 187
Crimson Clover	Auburn Bulletin No. 147
Lime for Alabama Soils	Auburn Bulletin No. 161

GRAIN CROPS.

Corn Cultivation	Farmers' Bulletin No. 414
Harvesting and Storing Corn.....	Farmers' Bulletin No. 313
Seed Corn	Farmers' Bulletin No. 415
Oats—Growing the Crop	Farmers' Bulletin No. 424
Oats—Distribution and Uses.....	Farmers' Bulletin No. 420
Test of Varieties of Corn in Alabama.....	Auburn Bulletin No. 53
Destroying Weevils in Corn.....	Auburn Bulletin No. 40

COTTON.

Cotton Seed and Its Products.....	Farmers' Bulletin No. 36
Sea Island Cotton	Farmers' Bulletin No. 302
Cotton Wilt	Farmers' Bulletin No. 333
The Boll Weevil Problem.....	Farmers' Bulletin No. 512
Facing the Boll Weevil in Alabama.....	Auburn Bulletin No. 146
Cotton Worms	Auburn Bulletins Nos. 47, 48
Test of Varieties of Cotton.....	Auburn Bulletin No. 52

TRUCKING.

Seed Potatoes	Farmers' Bulletin No. 533
Potato Culture	Farmers' Bulletin No. 35
Sweet Potatoes	Farmers' Bulletin No. 324
Small Fruit Culture.....	Farmers' Bulletin No. 47
Use of Frames in Truck Growing.....	Farmers' Bulletin No. 460
Fungicides and Disease	Farmers' Bulletin No. 243
Vegetable Growing in Alabama.....	Auburn Circular No. 14

ROADS.

Benefit of Improved Roads.....	Farmers' Bulletin No. 505
Macadam Roads	Farmers' Bulletin No. 338
Sand-Clay Roads	Farmers' Bulletin No. 311
Use of the Split-log Drag.....	Farmers' Bulletin No. 321
Use of Concrete	Farmers' Bulletin No. 461

FARM ECONOMICS.

Farm Management.....	Plant Industry Bulletin No. 259
Replanning a Farm.....	Farmers' Bulletin No. 370
Supply and Wages of Farm Labor.....	Year Book, Separate, No. 528
Farm Bookkeeping.....	Farmers' Bulletin No. 511
Marketing Farm Produce.....	Farmers' Bulletin No. 62
Co-operation in Marketing Fruit.....	Year Book, Separate, No. 546

VI. AS TO VITALIZING AGRICULTURE.

The special efforts of modern educators is toward vitalizing all school work. Purely academic methods will no longer answer in any kind of educational work. This vitalizing process is being worked out through such agencies as the kindergarten, nature study, manual training, domestic art, domestic science, school gardening, agriculture, etc. The efficacy of this kind of education and the demand for it is shown in the widespread establishment and the wonderful popularity of our industrial or technical schools.

One of the very best means of vitalizing the rural or village school is by means of the work in agriculture. To do this the work will have to be given a prominent place. Begin by setting the pupil to work toward getting up equipment. A boy working on a seed tester or germinating box at home will not only give the boy a lively interest in the use to be made of it, but will usually enlist the interest of the family as well. A public entertainment or sale supper of some kind for the purpose of buying equipment for the class will create a decided interest on the part of both pupils and patrons.

A very good means of vitalizing the subject is to turn the weekly literary exercises or debating club into an agricultural club. At these meetings discussions and debates on farm topics, rather than such topics as "The Sword and the Pen" should be had. Following is a program suggested for such a meeting:

I. PROGRAM.

For Friday afternoon exercises or Agricultural Club. Subject: Pollination.

1. Paper-----"Parts of the Flower and Their Function"
(with blackboard illustrations.)
2. Recitation-----Some familiar poem or essay on the flower
(from the English department)
3. Blackboard Discussion-----"What is Pollination?"

With blackboard drawings and discussions of	{	a. Stamen
		b. Pollen
		c. Pistil
		d. Ovary
		e. Pollination
		f. Fecundation
		g. Seed

4. Debate. Resolved, That the work of Luther Burbank in creating new plants is of more benefit than the work of Thomas Edison with electricity.
5. Paper. Practical Application of the Principles of Cross-Pollination in Growing Seed Corn.

This is merely a suggestion of a program that might be worked out on this topic. Any of the many topics which the class discusses through the year could be used as a basis for some such program. Of course it would be best to select subjects which the student of your particular school would be most interested in from a practical standpoint. Also, subjects should be selected upon which there is some reading matter available.

A discussion of live topics like these will draw some patrons and outsiders to the meetings, and would possibly result in getting outsiders to join the society or to organize a separate farmers' club, which would meet at the school house. If the school is large enough to support two societies the boys should form one and the girls another. The girls could gradually work in questions of domestic art and science and thus enlist the interest of the women of the community and probably result in organizing them into a club. Such work as this takes time and energy and patience on the part of the teacher. But it is worth while. If your work counts it must stand for more than class-room exercises.

Another excellent means of vitalizing the high school work is through the agency of the Boys' Corn Clubs and the Girls' Tomato Clubs. Every public school and local high school should co-operate in this movement. It not only gives the boys and girls the home problems which furnish such efficient training, it brings them in direct touch with the United States Department of Agriculture, and they are also given a

further incentive by the liberal prizes offered in these clubs. Of course it would not be expected to get all the students in these clubs but there would doubtless be several boys and girls in each high school community who would join and carry out the work of these clubs. Full information in reference to the Boys' Corn Clubs and Girls' Tomato Clubs can be secured by addressing the Alabama Experiment Station, Auburn. Upon request an officer of the experiment station would probably arrange to visit your school and assist in getting the work started.

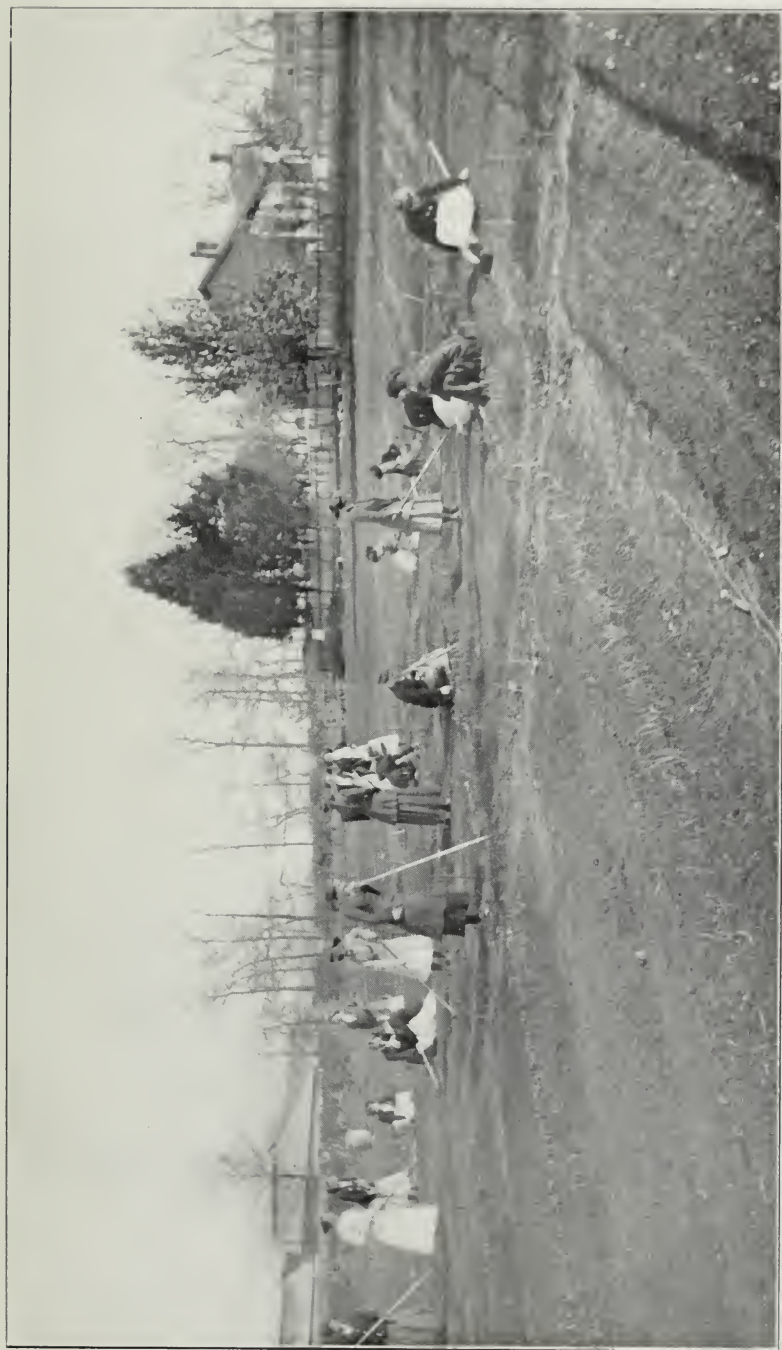
Another means of vitalizing the work of most high schools is through the School Improvement Society. The work of this club would not necessarily confine itself to the agricultural class but the nature of the work would probably appeal most strongly to this class, especially in reference to improving and planting the school grounds. Information on the work and purposes of this club can be secured by addressing the Superintendent of Education, Montgomery.



POTTING BULBS.

This is a rather interesting exercise and will furnish material for lessons on several topics, such as soils, plant food, drainage, plant types, etc.

By interesting the students in such outside movements as the Boys' Corn Club, the School Improvement Society, Agricultural Club or Society, Reading Courses, etc. The scope of the work is enlarged and the field of interest and operation made wider. The teacher is given more means by which the students can be reached; and the students are given a wider field for activity and for finding a place in the work. One student might work out his salvation as a farmer through the Corn Club; another might get a vision through a Reading Course or in making a seed tester. One caution might well be interposed just here—too much should not be undertaken lest the class force be dissipated, and the time of both teacher and student be wasted. Help the students find their work and keep them at it. Make of each student a problem until you make a problem for each student. One boy was a seeming dullard in the class until farm drainage was reached. Here he got his vision, and carried it home with him. Today he is shipping potatoes by the car from a farm



GIRLS' CLASS IN SCHOOL GARDENING—ONE MEANS OF VITALIZING AGRICULTURE.

where his father eked out an existence among bullrushes and sedges. Another boy could not be reached by the class work but the reading table caught him and carried him through a good agricultural college and into a lucrative and useful career as a teacher of agriculture. Agriculture meant nothing to a girl until the class picked ripe strawberries in the school garden and sorted and packed them into crates. Maybe we would analyze it as the "creative spirit" appealing to her. At any rate she now finds pleasure and profit in growing strawberries at home.

While the teacher must use some of these out-of-class movements to give the students a wider opportunity for the development of their interest and love for agriculture, still it must be kept in mind that the class work must be the mainspring of interest and the source of inspiration; and this inspiration will come through thorough work on the part of the student and through patience, energy and enthusiasm on the part of the teacher; and finally through vitalizing the work in agriculture at every opportunity.



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